

Kate (Kathleen) Lynch

Areas of Specialisation: Philosophy of Biology, Philosophy of Science, Genetics

Areas of Competence and Research Interests: Bioethics, Conservation, Philosophy of Medicine, Philosophy of Cognitive Science, Philosophy of Mind

Education

2011 – 2015	PhD in Philosophy, Macquarie University Nature-via-Nurture: What to do with cases of gene-environment covariance? Thesis awarded the Vice Chancellor's Commendation
2012 (Jan-July)	Visiting Scholar. Centre for Philosophy of Science, University of Pittsburgh
2009 – 2014	Bachelor of Advanced Science (Biology), Macquarie University Awarded Vice Chancellors Award for academic excellence
2011 (Jan-Feb)	Visiting student. University of the South Pacific, Fiji
2009	Honours in Philosophy (First Class), University of Sydney
2004 – 2007	Bachelor of Arts – Philosophy & Psychology, University of Sydney

Employment

2016 – Current	Post-Doctoral Research Fellow (John Templeton Foundation) Centre for the Foundations of Science, University of Sydney
Dec 2018- June 2019	Parental leave (resumed part-time June 2019)
2016 – 2018	ARC Research Fellow Department of Biological Sciences, Macquarie University
2015 – 2016	Research Associate Department of Philosophy, Macquarie University
2010 – 2012	Research Assistant Centre for the Integrative Study of Animal Behaviour (CISAB) Macquarie University

Laboratory and Research Group Affiliations

Charles Perkins Centre	2016-current
Theory and Methods in Biosciences – University of Sydney	2016-current
Evolutionary Ecology laboratory – Macquarie University	2014-current
Centre for Fruit Fly Biosecurity and Innovation (National)	2016-2017
Centre for Biosecurity Futures – Macquarie University	2016-2017
Ecosystem Sciences Division-CSIRO National Laboratories, Canberra	2017
Neuroethology Laboratory – Macquarie University	2012-2013
Centre for the Integrative Study of Animal Behaviour– Macquarie University	2010-2012

Competitive Grants, Awards and Funding

- 2017 **Australian Academy of the Humanities Travel Award** (AUD \$4000.00)
- 2016 **Templeton Foundation, Genetics and Human Agency Project** (USD: \$321,607.00 total project). Co-investigator with P. Griffiths and I. Dar-Nimrod.
- 2015 **Macquarie University Departmental Travel Grant** (AUD: \$2681.00)
- 2013 **Macquarie University Departmental Travel Grant** (AUD: \$2,130.00)
- 2013 **Genetics Society of Australia Student Travel Award** (AUD: \$250.00)
- 2011 **Macquarie University Post Graduate Research Fund (PGRF) Grant** (AUD: \$5,000.00)
- 2011 **Macquarie University Summer Research Scholarship** (AUD: \$1100.00)
- 2010 **Macquarie University Summer Research Scholarship** (AUD: \$1100.00)
- 2010 **Macquarie University Travel Grant** (AUD: \$1000.00)
- 2010 **Australian Research Council Discovery Grant PhD Scholarship (Macquarie)** (AUD: \$78,750.00 – 3 years full tuition and stipend)
- 2009 **University of Sydney Honours Scholarship** (AUD: \$5,000.00)
- 2008 **Walter Reid Memorial Prize (Sydney)** (AUD: \$500.00)

Publications

Published / In Press

1. **Lynch, K.E.**, Parke, E, O'Malley M. (2020) 'Microbiome causality: further reflections. (a response to our commentaries)' *Biology and Philosophy*.
2. **Lynch, K.E.**, Parke, E, O'Malley M. (2019) 'How causal are microbiomes? A comparison with the *Helicobacter pylori* explanation of ulcers.' *Biology and Philosophy*. 34, 62. Target article with 12 open peer commentaries
3. O'Neill, S.J., White, T.E., **Lynch, K.E.**, and Kemp, D.J (2019) 'Male guppies differ in display rate but not diel pattern of display under daily light changes.' *Behavioral Ecology and Sociobiology*. 73: 157.
4. **Lynch, K.E.** (2019) 'Why microbes not microbiomes are better causal explanations in gut-brain research.' *Behaviour and Brain Sciences*, 42, e76.
5. **Lynch, K.E.** (2019) 'Heritability.' In *Encyclopedia of Evolutionary Psychological Science*. DOI: https://doi.org/10.1007/978-3-319-16999-6_2782-1
6. **Lynch, K.E.** (2019) 'Gut microbiome.' In *Encyclopedia of Evolutionary Psychological Science*, DOI: https://doi.org/10.1007/978-3-319-16999-6_41-1
7. Dar-Nimrod, I., MacNevin, G., Godwin, A., **Lynch, K.E.**, Magory Cohen, T., Morandini, J. (2019) 'Genetic literacy within a national Australian sample: comparisons with other diverse populations.' *Public Health Genomics*, 1-11.
8. **Lynch, K.E.**, White, T.E., Kemp, D.J. (2019) 'The effect of long-term captive breeding upon adult thermal preference in the Queensland Fruit Fly (*Bactrocera tryoni*).' *Journal of Thermal Biology*, 78, 290-297.
9. **Lynch, K.E.**, Morandini, J. Dar-Nimrod, I. Griffiths, P. (2018) 'Causal reasoning about genetics: Synthesis and future directions.' *Behavior Genetics*, 49(2):221-234.

10. **Lynch, K.E.** and Bourrat, P. (2017) 'Interpreting heritability causally.' *Philosophy of Science*, 84(1) 14-34.
11. **Lynch, K.E.** (2017) 'Heritability and causal reasoning.' *Biology & Philosophy*, 32(1) 25-49.
12. **Lynch, K.E.** (2016) 'Gene environment correlation.' *Encyclopaedia of Personality Differences*. Springer. DOI: 10.1007/978-3-319-28099-8_1470-1
13. **Lynch, K.E.** and Kemp, D.J. (2014) 'Nature-via-nurture and unravelling causality in evolutionary genetics.' *Trends in Ecology and Evolution*, 29(1) 2-5.

In Review

14. **Lynch, K.E.** 'The meaning of cause in genetics' In *Genetics meets causal inference: Understanding modifiable risks in human health and development*. Editors: George Davey Smith, Rebecca Richmond, John-Baptiste Pingault. Cold Spring Harbour Press.
15. **Lynch, K.E.**, 'Detecting gene-environment interplays using in quantitative behavioural genetics'
16. Kemp, D.J., **Lynch, K.E.** and St-Jean, S. 'Animal personality as a sexual trait: a test of predictions across three discrete strains of the guppy (*Poecilia reticulata*)'

Conference and Workshop Presentations (*Invited, †Refereed)

- 'How a focus on intelligence has shaped the nature nurture debate'
1. *ISHPSSB*, Oslo July 2019†
- 'How causal are microbiomes'
2. Philosophy Seminar Series, University of NSW June 2019*
 3. *The Future of Microbiome Research Conference*, Sydney Nov 2018*
- 'Nature via nurture: Estimating gene-environment correlation and its impacts on evolution'
4. *Workshop on Culture and Cognition*, CAVE, Macquarie University Oct 2018*
 5. Biological Sciences Seminar Series, Colorado State University July 2018*
 6. College of Natural and Agricultural Sciences, UC, Riverside July 2018*
- 'Complex causation: Perceptions and reality' (with J. Morandini)
7. *Genetics and Human Agency AM*, University Virginia July 2018*
- 'Inheriting environments'
8. Biological Sciences Seminar Series, Macquarie University Sep 2017
- 'Causation, chance, coincidence, and accident in behaviour genetics'
9. *Workshop on Chance, Coincidence and Accident*, ANU July 2017*
- 'Norms and natures: How ideas about the genetic basis and the ethical status of behaviours influence one another' (with J. Morandini, P. Griffiths and I. Dar-Nimrod)
10. *Genetics and Human Agency AM*, University Virginia July 2017*
- 'Using formal methods in the debate over heritability and causation'
11. *Formal Methods for Philosophy of Science*, University of Sydney Mar 2017*
- 'What happens when genes cause environments'
12. *Kenneth Meredith Garven Lecture & Symposium on Determinism*, University of Sydney Dec 2016*
- 'The Baldwin Effect and the extended evolutionary synthesis'
13. Philosophy Seminar Series, Macquarie University Sep 2016*
 14. *Genes to Geosciences Annual Conference*, Macquarie University July 2016†
- 'Estimating complex heritabilities'

15. ECR Biology Research Showcase, Macquarie University	May 2016*
‘Research frontiers in biology: Being on the front foot of science impact and engagement’ (With DJ. Kemp and M. Gillings)	
16. Environmental Sciences Seminar Series, Macquarie University	Apr 2016*
‘The Norm of Reaction and Causal Explanation’	
17. HPS Seminar Series, The University of Sydney	Apr 2016*
18. Philosophy Seminar Series, ANU	Mar 2016*
‘Interaction’s ugly cousin: The impact of G-E covariance on causal interpretations of heritability’	
19. <i>Causation in Biology Conference</i> , University of Bristol,	Sept 2015†
20. <i>Philosophy of Biology at Dolphin Beach Conference</i>	Aug 2015
‘Heritability and the interventionist account of causation’	
21. <i>AAP Conference</i> , Macquarie University	July 2015†
‘Heritability and the concepts of ‘gene’ and ‘environment’ (With P. Bourrat)	
22. <i>AAP Conference</i> , ANU	July 2014†
‘Epigenetics and heritability’	
23. Sydney- Australian National University (S-ANU) workshop	Mar 2014
‘Evidence for sources of phenotypic variance and the consequences for evolutionary prediction’	
24. <i>7th Munich-Sydney-Tilburg Philosophy of Science Conference: Evolutionary Thinking</i> , University of Sydney	Mar 2014†
‘A re-revised model of phenotypic variance’	
25. <i>AAP Conference</i> , University of Auckland	Dec 2013†
‘decomposing causal intuitions about gene-environment covariance’	
26. Workshop on Causation in Science and Metaphysics, Macquarie University	July 2012

Media / Public Outreach

Genetic test for gay genes misleading and dangerous. *The Conversation*. Nov 2019.

Interview: De-extinction and the biodiversity crisis. *Triple J Arvos with Veronica & Sally*. Apr 2018.

Fear-mongering is scary, not genetic technologies themselves. *The Conversation*. February 2017.

Interview: Direct to consumer genetic testing & de-extinction. *Eastside FM Tuesday Drive* Apr 2017

Nature versus Nurture: Some new thoughts on an old debate. Lead story for educational resources newsletter for teachers. Jan 2017

Radio interview: Genetics, inheritance and education. *ABC radio 702* August 2016.

Genes are not destiny: environment and education still matter when it comes to intelligence. *The Conversation*. August 2016.

Radio interview: Nature via Nurture *3CR Radio “Radical Philosophy” Segment*. November 2015.

Radio interview: Genetics, Memory and Inheritance. *3AW Radio “Breakfast Break”* Nov 2014.

When is an Animal not an animal? Research Ethics Draws the Line. *The Conversation*. Jan 2014.

Explainer: What is Heritability? *The Conversation*. December 2013.

Teaching Experience

Department of Philosophy, University of Sydney

- 2020 Online tutor: OLET1508: Health Challenges: Evolution, Health and Disease
Course Convenor and Lecturer: PHIL3677: Philosophy of Medicine

Department of Biological Sciences, Macquarie University

- 2017 Course (co-)Convenor and Lecturer: BIOL334: Conservation Genetics
Lecturer: BIOL334: Conservation Genetics
Guest Lecturer: BIOL188/388: Advanced Biology
- 2016 Lecturer: BIOL334: Conservation Genetics
Guest Lecturer: BIOL 188/388: Advanced Biology
- 2015 Tutor / Demonstrator: BIOL334: Conservation Genetics
Individual Tutor (Disability Services): BBE200: Animal Behaviour; BIOL 260: The Science of Sex; BIOL 334: Conservation Genetics
- 2014 Tutor / Demonstrator: BIOL334: Conservation Genetics; BIOL115: The Thread of Life
Individual Tutor (Disability Services): BIOL206: Genetics; BIOL257: Neurophysiology; BIOL115: The Thread of Life; BIOL108: Human Biology
- 2013 Tutor / Demonstrator: BIOL334: Conservation Genetics; BIOL115: The Thread of Life
- 2012 Tutor / Demonstrator: BIOL115: The Thread of Life; BIOL 208: Animal Structure & Function

Department of Philosophy, Macquarie University & University of Sydney

- 2017 Guest Lecturer: PHL2677: How Biology Matters to Philosophy
- 2014 Tutor / Demonstrator: PHL 131: Mind, Meaning and Metaphysics
Individual Tutor (Disability Services & Indigenous Tutorial Assistance Scheme):
PHIL 137: Critical Thinking; PHIL 262: Body & Mind; PHIL 249: Biology Mind & Culture
OUA Development Officer & Online tutor: PHI220: Body and Mind
- 2013 OUA Development Officer & Online tutor: PHI310: Philosophy and Cognitive Science
- 2011 Tutor / Demonstrator: PHL137: Critical Thinking

Student Supervision

- 2017-present PhD student (co-supervisor) –Samuel O’Neill, Macquarie University
- 2014 Summer research intern –Samantha St Jean, Macquarie University

Outreach

- 2018 Lecturer and Demonstrator for: ‘Genetics: Solving Global Challenges’ Professional development course for secondary school teachers (NSW Education Standards Registered)
- 2017 Reading Group Convener: Theory in Biology Reading Group –Macquarie University

- 2014 Adjudicator and demonstrator –North Sydney High School Philosothon
Guest teacher –Tuggerah Lakes High School biology department
- 2013 Adjudicator and demonstrator –North Sydney High School Philosothon
- 2012 Guest teacher - Genetics and Cell Biology St Andrews Cathedral School outreach

Professional Service

Guest Editor: *History and Philosophy of Biological and Biomedical Sciences*. Special Issue on the History and Philosophy of Quantitative Genetics (2019-2020)

Referee for: *Behavior Genetics* • *Biology and Philosophy* • *European Journal for Philosophy of Science* • *Behavioral Ecology and Sociobiology*

Panel Member: Evolutionary Science Forum, AAS National Committee for Ecology, Evolution & Conservation (Dec 2019)

PhD Committee

Supervisors: Peter Menzies, Karola Stotz, Richard Menary
Examiners: James Woodward, James Tabery, Paul Griffiths

References

Available upon request